

Message Text

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TO USDOE WASHDC

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UNCLAS SECTION 1 OF 2 TEHRAN 05572

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SUBJ: DOE INTERNATIONAL SOLAR COMMERCIALIZATION PROGRAM

REF: A. STATE 130828, B. STATE 145840

1. SUMMARY: DOE COUNTRY DATA SURVEY REVIEW HAS BEEN COMPLETED BY EMBASSY. MUCH OF INFORMATION REQUESTED AS STATED REFTEL A PARA 2, AVAILABLE WASHINGTON; E.G. USDOC PUBLICATION IRAN: A SURVEY OF U.S. BUSINESS OPPORTUNITIES: TEHRAN A-64 OF MAY 9 WHICH IS FINAL REPORT OF TEHRAN USTC EXHIBITION AND SEMINAR ON SOLAR ENERGY; AND, THE TECHNICAL PAPER PRESENTED AT THE SOLAR EXHIBITION BY S. VOJDANI, DIRECTOR, MATERIALS AND ENERGY RESEARCH CENTER (MERC), ASSOCIATED WITH ARYAMEHR UNIVERSITY, ENTITLED "SOLAR ENERGY R AND D IN IRAN-THE APPROACH AND THE PHILOSOPHY." EMBASSY CONCLUDES THAT MOMENTUM IN FIELD OF SOLAR ENERGY DEVELOPMENT, WHICH HAS BEEN BUILDING SLOWLY IN IRAN FOR SEVERAL YEARS, IS RAPIDLY REACHING "CRITICALITY" LEVEL. NEED FOR DEVELOPING COMMERCIAL BASE IS RECOGNIZED AT HIGHEST OF GOI LEVELS, WHICH PORTENDS INCREASED IRANIAN INVESTMENT IN THIS TECHNOLOGY. EMBASSY RECOMMENDS IRAN BE CONSIDERED AMONG HIGH UNCLASSIFIED

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PRIORITY COUNTRIES FOR DOE SOLAR COMMERCIALIZATION PROGRAM EFFORTS, NOTING THAT IRAN ALREADY HAS OPERATIVE COMMERCIAL ARRANGEMENTS WITH GERMAN AND FRENCH COMPANIES. EMBASSY IS ALSO PURSUING POSSIBILITY OF US-GOI TRAINING PROGRAM IN SOLAR ENERGY FIELD IN ORDER TO STIMULATE DEVELOPMENT OF BADLY NEEDED INFRASTRUCTURE IN IRAN, WITH ATTENDANT PREFERENCE FOR U.S. KNOW-HOW

AND HARDWARE. END SUMMARY.

2. SCIATT AND TRADE CENTER MRO REVIEW OF DOE COUNTRY DATA SURVEY, TAKING INTO ACCOUNT AVAILABILITY OF MAJORITY OF INFORMATION AS NOTED IN SUMMARY ABOVE, FOLLOWS: (A) POLITICAL CRITERIA--STATUS OF IRAN IS WELL KNOWN TO DEPARTMENT AND POSITIVE RESPONSES APPLY TO VIRTUALLY ALL QUESTIONS PERTINENT TO THIS FRIENDLY POST-GRADUATE AID COUNTRY. IRAN IS VIEWED AS MAJOR STABILIZING INFLUENCE AND MODERATING FORCE IN SUPPORT OF U.S. FOREIGN POLICY OBJECTIVES FOR THIS PART OF THE WORLD. GOI COMMITMENT TO DEVELOPMENT OF NON-CONVENTIONAL ENERGY SOURCES IS MAJOR. ACTIVE PROGRAMS IN SOLAR ENERGY EXIST AND WILLINGNESS TO SHARE COSTS HAS ALREADY BEEN DEMONSTRATED BY IRAN WITH WESTERN EUROPEAN COUNTRIES, AND IS INTEGRAL PART OF BASIC AGREEMENT BETWEEN U.S. AND IRAN UNDER THE JOINT COMMISSION. (B) TECHNICAL CRITERIA--IN ORDER OF DOMESTIC CONSUMPTION, THIS MAJOR OPEC COUNTRY USES APPROXIMATELY 70 PERCENT PETROLEUM; 20 PERCENT NATURAL GAS; 10 PERCENT HYDRO AND OTHER ENERGY FORMS. IRAN'S PETROLEUM AND LARGE NATURAL GAS RESERVES AFFORD BOTH NEAR AND LONG TERM CONVENTIONAL ENERGY SUPPLY; HOWEVER, SINCE PETROLEUM IS PRINCIPAL EXPORT REVENUE RESOURCE, CONSERVATION EFFORTS ARE REFLECTED BY ALTERNATIVE NUCLEAR ENERGY DEVELOPMENT, PETROCHEMICAL INDUSTRY DEVELOPMENT, AND GROWING INTEREST

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IN SOLAR ENERGY UTILIZATION. POTENTIAL OIL RESERVES ARE 70-80 BILLION BARRELS AND EXPLOITATION POTENTIAL IS READILY AVAILABLE. VIRTUALLY ALL SPECIFIC SOLAR ENERGY APPLICATIONS LISTED IN DOE COUNTRY DATA SURVEY ARE TECHNICALLY FEASIBLE AND DESIRABLE IN IRAN DUE TO ABUNDANT SOLAR RESOURCES (ANNUAL AVERAGE OF 120-130 DAYS OF SUNSHINE WITH SEVERAL REGIONS AT TWICE THIS LEVEL, INCLUDING SISTAN, BALUCHISTAN, KHORASSAN AND FARS). AT THIS TIME, MERC, PAHLAVI UNIVERSITY'S SOLAR ENERGY CENTER IN SHIRAZ, AND BU-ALI SINA UNIVERSITY IN HAMADAN AREA MAJOR ACTIVITY CENTERS FOR SOLAR ENERGY PROGRAM DEVELOPMENT. ACTIVITIES INCLUDE WATER AND HOUSE HEATING, DESALINATION, SOLAR

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ENERGY IN POWER PRODUCTION, DEVELOPMENT OF SOLAR
WATER PUMPS (UP TO 1 KW) FOR IRRIGATION, SOLAR
STERILIZATION IN MEDICINE AND MOST RECENTLY, WIND
ENERGY HAS RECEIVED NEW IMPETUS WITH PROSPECT FOR
WIND TURBINE PILOT PLANT CONSTRUCTION NORTHWEST OF
TEHRAN AT MANJIL. ALL OTHER APPLICATIONS CITED IN DOE
COUNTRY SURVEY, WITH POSSIBLE EXCEPTION AT THIS TIME
OF GEOTHERMAL DEVELOPMENT, ARE INTEGRAL PART OF GOI
SOLAR PROGRAM INTERESTS, ARE FEASIBLE AND AMENABLE TO
ADAPTATION OF APPROPRIATE WESTERN AND SPECIFICALLY U.S.
TECHNOLOGY. IRAN'S EXPERIENCE WITH SOLAR ENERGY
SYSTEMS HAS BEEN POSITIVE TO DATE, AND ALTHOUGH CURRENTLY
LIMITED BY ABSENCE OF COHERENT OVERALL GOVERNMENT PLAN
FOR SOLAR ENERGY DEVELOPMENT, CENTERS OF ACTIVITY ARE
BECOMING INCREASINGLY ACTIVE IN SEEKING OVERSEAS KNOW-
HOW FOR JOINT R AND D, DEMONSTRATIONS, AND DEVELOPMENT
OF LOCAL INDUSTRY. FRANCE AND GERMANY CURRENTLY SUB-
SIDIZE THEIR INDUSTRY AS PART OF GOI SHARED COST PROGRAMS.
SOLAR RESOURCES ARE HIGHLY FAVORABLE WITH AVERAGE SOLAR
ENERGY RADIATION ON HORIZONTAL SURFACE ABOUT FIVE KILO-
WATT HOURS PER SQUARE METER PER DAY FOR THE YEAR. AT
SHIRAZ, THE VALUE IS 6.2. LIMITED TECHNICAL SKILLS ARE
AVAILABLE, AS ARE CONSTRUCTION MATERIALS AND COMPLEMENTARY
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SUPPLY EQUIPMENT FOR SOLAR APPLICATIONS. OPPORTUNITIES
FOR EARLY COST-EFFECTIVE DEVELOPMENT AND DEMONSTRATION
ARE GREAT, PARTICULARLY IN RURAL VILLAGE SYSTEMS
DEVELOPMENT WHERE SOLAR ENERGY CAN SERVE AS A COMPLETELY
NEW SOURCE OF ENERGY RATHER THAN ALTERNATIVE ENERGY
SOURCE. IN THESE AREAS, NO WELL ESTABLISHED ENERGY
SOURCE PRESENTLY EXISTS; HOWEVER, ONLY SIMPLE LOW
TECHNOLOGY AND VIRTUALLY MAINTENANCE-FREE HARDWARE ARE

OF INTEREST TO GOI. WHERE SHRUBS AND BRUSH ARE USED AS FIREWOOD, WHICH IS THE CASE FOR VILLAGES IN ARID AREAS, THE COST-EFFECTIVENESS OF SOLAR ENERGY MUST BE WEIGHED IN PART, IN TERMS OF REDUCED THREAT OF GROWING DESERTIFICATION, A CONTINUING PROBLEM IN LARGE AREAS OF IRAN. PRIORITIES RESULTING FROM THE STUDY OF A SMALL DESERT VILLAGE (150 PEOPLE) TO DETERMINE SOURCES AND AMOUNTS OF ENERGY UNSED, ARE STATED IN THE VOJDANI PAPER AND REPEATED HERE FOR CONVENIENCE: QUOTE: WATER HEATER FOR COMMUNAL BATH HOUSE, MILK HEATER FOR USE DURING MILK PROCESSING, COLLER FOR STORAGE OF MILK PRODUCTS, SPACE HEATER FOR ROOM HEATING IN WINTER, CROP DRYING AND DESALINATION EQUIPMENT. UNQUOTE. IRAN'S DEVELOPMENT PROGRAM IN SOLAR TECHNOLOGY SHOULD PLACE THEM IN POSITION OF HIGH TECHNICAL READINESS BY 1985; THIS PROGRAM IS APPLICABLE TO U.S. PROGRAM NEEDS ONLY IF APPROACH USED CAN BE COMPETITIVE WITH FRENCH, GERMAN, AND ITALIAN COMPANIES, ACTING IN CONCERT WITH THEIR GOVERNMENTS THROUGH AN APPROACH SUCH AS SUBSIDIZED TESTING OF EQUIPMENT IN IRAN TO MEET IRAN'S UNIQUE NEEDS. (C) ECONOMIC CRETERIA--DATA ARE AVAILABLE FROM DOCUMENTS DESCRIBED PARA ONE ABOVE. SOLE ENERGY IMPORT AT THIS TIME IS NUCLEAR FUEL, WHICH IS EXPECTED TO GROW TO ABOUT 23,000 MWE INSTALLED CAPACITY, PROJECTED FOR 1993. ENERGY CONSUMPTION GROWTH RATE IS APPROXIMATELY 15 PERCENT PER YEAR.

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POTENTIAL MARKET FOR U.S. PRODUCTS COULD BE GREAT DURING THE NEXT DECADE. (D). SOCIAL/ENVIRONMENTAL CRITERIA--INTERNAL URBAN MIGRATION IS LARGE, APPROACHING 5 PERCENT PER YEAR IN TEHRAN. THERE IS LARGE PROPORTION OF RURAL POPULATION HIGHLY SCATTERED, WITH STRONG MOTIVATION FROM GOVERNMENT TO INDUSTRIALIZE. ACTIVE REINVESTMENT PROGRAM FOR OIL REVENUES IS EVERYWHERE APPARENT. CERTAIN AREAS OF IRAN ARE HIGH SEISMIC REGIONS WITH SIGNIFICANT EARTHQUAKE ACTIVITY THIS CENTURY.

3. AS STATED IN SCIATT DISCUSSIONS WITH DR. PATIL OF DOE'S COMMERCIALIZATION GROUP AND DR. L. HERWIG, SCIENCE ADVISOR, WHILE IN WASHINGTON LAST MONTH, EMBASSY WELCOMES OPPORTUNITY TO PROVIDE FURTHER SOLAR COMMERCIALIZATION INFORMATION AS IT BECOMES AVAILABLE HERE; EMBASSY WILL ALSO APPRECIATE RECEIVING DOE RECOMMENDATIONS INCLUDING POTENTIAL FUNDING ARRANGEMENTS FOR SOLAR COMMERCIALIZATION BY USG IN CONCERT WITH U.S. COMPANIES RE IRAN, AS THEY BECOME KNOWN.

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